VI. CLAIMS

WHAT IS CLAIMED IS:

1. A composition comprising at least one peptide, the peptide comprising an isolated, prepared epitope consisting of a sequence selected from the group consisting of:

VLYGPDAPTV (SEQ ID NO:1), YLSGANLNV (SEQ ID NO:2), ATVGIMIGV (SEQ ID NO:3), LLPENNVLSPV (SEQ ID NO:4), KLCPVQLWV (SEQ ID NO:5), KLBPVQLWV (SEQ ID NO:6), SLPPPGTRV (SEQ ID NO:7), SMPPPGTRV (SEQ ID NO:8), KLFGSLAFV (SEQ ID NO:9), KVFGSLAFV (SEQ ID NO:10), VMAGVGSPYV (SEQ ID NO:11), ALCRWGLLL (SEQ ID NO:12), FLWGPRALV (SEQ ID NO:13), HLYQGCQVV (SEQ ID NO:14), ILHNGAYSL (SEQ ID NO:15), IMIGVLVGV (SEQ ID NO:16), KIFGSLAFL (SEQ ID NO:17), KVAELVHFL (SEQ ID NO:18), LLTFWNPPV (SEQ ID NO:19), LVFGIELMEV (SEQ ID NO:20), QLVFGIELMEV (SEQ ID NO:21), RLLQETELV (SEQ ID NO:22), VVLGVVFGI (SEQ ID NO:23), YLQLVFGIEV (SEQ ID NO:24), and YMIMVKCWMI (SEQ ID NO:25).

2. A composition of claim 1, wherein the epitope is joined to an amino acid linker.

3. A composition of claim 1, wherein the epitope is admixed or joined to a CTL epitope.

4. A composition of claim 1, wherein the epitope is admixed or joined to an HTL epitope.

5. A composition of claim 4, wherein the HTL epitope is a pan-DR binding molecule.

6. A composition of claim 1, further comprising a liposome, wherein the epitope is on or within the liposome.

7. A composition of claim 1, wherein the epitope is joined to a lipid.

8. A composition of claim 1, wherein epitope is a heteropolymer.

9. A composition of claim 1, wherein the epitope is a homoplymer.

10. A composition of claim 1, wherein the epitope is bound to an HLA heavy chain, β2-microglobulin, and strepavidin complex, whereby a tetramer is formed.

11. A composition of claim 1, further comprising an antigen presenting cell, wherein the epitope is on or within the antigen presenting cell.

12. A composition of claim 11, wherein the epitope is bound to an HLA molecule on the antigen presenting cell, whereby when an A2-restricted cytotoxic lymphocyte (CTL) is present, a receptor of the CTL binds to a complex of the HLA molecule and the epitope.

13. A composition of claim 11, wherein the antigen presenting cell is a dendritic cell.

14. A composition comprising one or more peptides, and further comprising at least three epitopes selected from the group consisting of:

VLYGPDAPTV (SEQ ID NO:1), YLSGANLNV (SEQ ID NO:2), ATVGIMIGV (SEQ ID NO:3), LLPENNVLSPV (SEQ ID NO:4), KLCPVQLWV (SEQ ID NO:5), KLBPVQLWV (SEQ ID NO:6), SLPPPGTRV (SEQ ID NO:7), SMPPPGTRV (SEQ ID NO:8), KLFGSLAFV (SEQ ID NO:9), KVFGSLAFV (SEQ ID NO:10), VMAGVGSPYV (SEQ ID NO:11) ALCRWGLLL (SEQ ID NO:12), FLWGPRALV (SEQ ID NO:13), HLYQGCQVV (SEQ ID NO:14), ILHNGAYSL (SEQ ID NO:15), IMIGVLVGV (SEQ ID NO:16), KIFGSLAFL (SEQ ID NO:17), KVAELVHFL (SEQ ID NO:18), LLTFWNPPV (SEQ ID NO:19), LVFGIELMEV (SEQ ID NO:20), QLVFGIELMEV (SEQ ID NO:21), RLLQETELV (SEQ ID NO:22), VVLGVVFGI (SEQ ID NO:23), YLQLVFGIEV (SEQ ID NO:24), and YMIMVKCWMI (SEQ ID NO:25);

wherein each of said one or more peptides comprise less than 50 contiguous amino acids that have 100% identity with a native peptide sequence.

15. A composition of claim 14, wherein one peptide comprises the at least three epitopes.

16. A composition of claim 14, comprising at least four epitopes selected from the group of claim 14.

17. A composition of claim 14, comprising at least five epitopes selected from the group of claim 14.

18. A composition of claim 14, comprising at least six epitopes selected from the group of claim 14.

19. A composition of claim 14, comprising at least seven epitopes selected from the group of claim 14.

20. A composition of claim 14, comprising at least eight epitopes selected from the group of claim 14.

21. A composition of claim 4, wherein at least one of the one or more peptides is a heteropolymer.

22. A composition of claim 14, wherein at least one of the one or more peptides is a homopolymer.

23. A composition of claim 14, further comprising an additional epitope.

24. A composition of claim 23, wherein the additional epitope is derived from a tumor associated antigen.

25. A composition of claim 23, wherein the additional epitope is a PanDR binding molecule.

26. A vaccine composition comprising:

a unit dose of a peptide that comprises less than 50 contiguous amino acids that have 100% identity with a native peptide sequence of CEA, HER2/neu, MAGE2, MAGE3, or p53, the peptide comprising an epitope selected from the group consisting of: VLYGPDAPTV (SEQ ID NO:1), YLSGANLNV (SEQ ID NO:2), ATVGIMIGV (SEQ ID NO:3), LLPENNVLSPV (SEQ ID NO:4), KLCPVQLWV (SEQ ID NO:5), KLBPVQLWV (SEQ ID NO:6), SLPPPGTRV (SEQ ID NO:7), SMPPPGTRV (SEQ ID NO:8), KLFGSLAFV (SEQ ID NO:9), KVFGSLAFV (SEQ ID NO:10), VMAGVGSPYV (SEQ ID NO:11), ALCRWGLLL (SEQ ID NO:12), FLWGPRALV (SEQ ID NO:13), HLYQGCQVV (SEQ ID NO:14), ILHNGAYSL (SEQ ID NO:15), IMIGVLVGV (SEQ ID NO:16), KIFGSLAFL (SEQ ID NO:17), KVAELVHFL (SEQ ID NO:18), LLTFWNPPV (SEQ ID NO:19), LVFGIELMEV (SEQ ID NO:20), QLVFGIELMEV (SEQ ID NO:21), RLLQETELV (SEQ ID NO:22), VVLGVVFGI (SEQ ID NO:23), YLQLVFGIEV (SEQ ID NO:24), and YMIMVKCWMI (SEQ ID NO:25); and;

a pharmaceutical excipient.

27. A vaccine composition in accordance with claim 26, wherein the epitope is YLSGANLNV (SEQ ID NO:2).

28. A vaccine composition in accordance with claim 26, wherein the epitope is KLBPVQLWV (SEQ ID NO:6).

29. A vaccine composition in accordance with claim 26, wherein the epitope is SMPPPGTRV (SEQ ID NO:8).

30. A vaccine composition in accordance with claim 26, further comprising an additional epitope.

31. A vaccine composition of claim 30, wherein the additional epitope is a PanDR binding molecule.

32. A vaccine composition of claim 26, wherein the pharmaceutical excipient comprises an adjuvant.

33. A vaccine composition of claim 26, further comprising an antigen presenting cell.

34. A vaccine composition of claim 33, wherein the epitope is bound to an HLA molecule on the antigen presenting cell, whereby when an A2 supertype-restricted cytotoxic T lymphocyte (CTL) is present, a receptor of the CTL binds to a complex of the HLA molecule and the epitope.

35. A vaccine composition of claim 33, wherein the antigen presenting cell is a dendritic cell.

36. A vaccine composition of claim 26, further comprising a liposome, wherein the at least one epitope is on or within the liposome.